

(No Model.)

2 Sheets—Sheet 1.

E. D. EVANS.
FLASH LIGHT MECHANISM.

No. 536,276.

Patented Mar. 26, 1895.

Fig. 1.

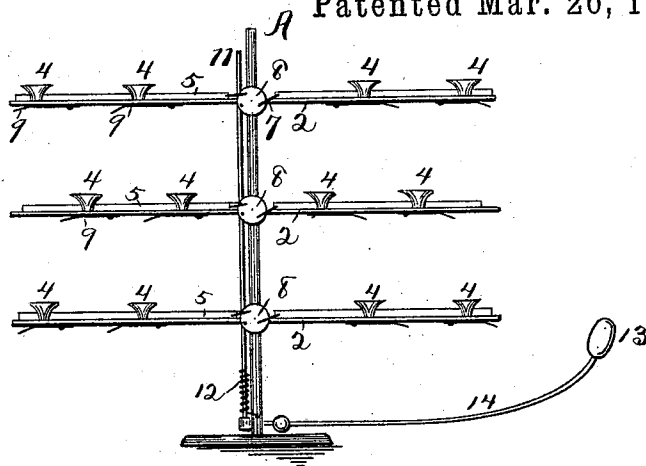


Fig. 2.

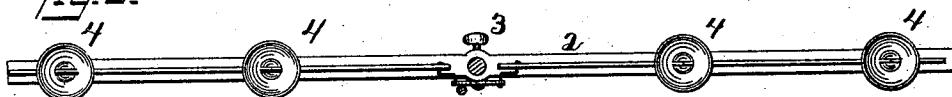


Fig. 3.

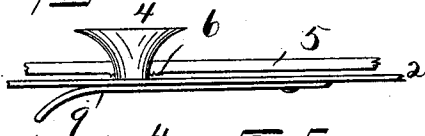


Fig. 4.

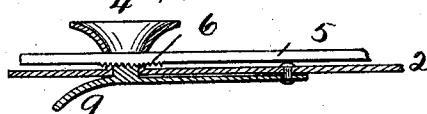


Fig. 5.



Fig. 6.

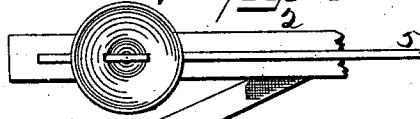


Fig. 7.

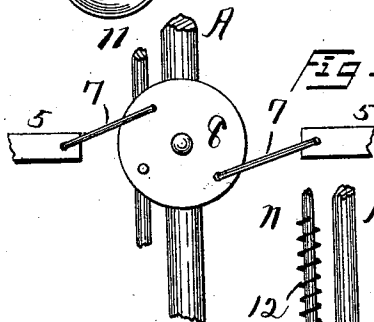


Fig. 8.

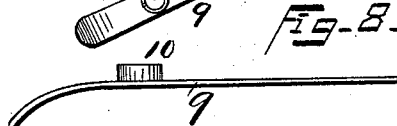
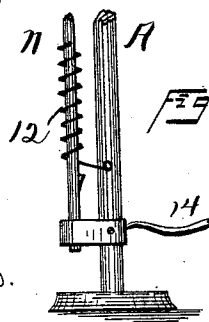


Fig. 9.



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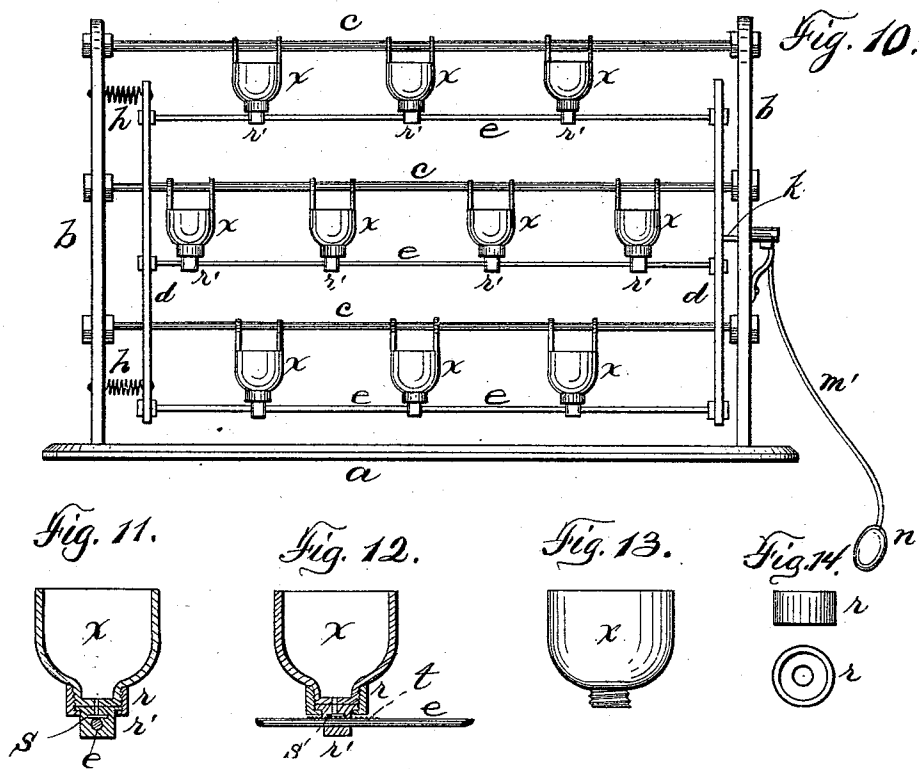
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FLASH LIGHT MECHANISM.

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UNITED STATES PATENT OFFICE.

EVAN D. EVANS, OF ITHACA, NEW YORK.

FLASH-LIGHT MECHANISM.

SPECIFICATION forming part of Letters Patent No. 536,276, dated March 26, 1895.

Application filed March 15, 1894. Serial No. 503,676. (No model.)

To all whom it may concern:

Be it known that I, EVAN D. EVANS, of Ithaca, in the county of Tompkins, in the State of New York, have invented new and useful
5 Improvements in Flash-Light Apparatus, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to photography, and particularly to machines or apparatus for producing flash lights, whether stationary or portable.

My object is to produce a flash-light apparatus, either stationary or portable, comprising a suitable support, flash-cups mounted thereon in an upright position, and means to ignite the flashing material or powder by friction, as by exploding or igniting a cap or primer; such frictional ignition being effected
20 as by the scratching, rubbing or abrasion of the cap or primer by means of horizontally reciprocated saw-toothed bars or rods which engage with the caps or primers simultaneously, to effect the ignition of the flash powder
25 in all of the cups simultaneously.

My invention consists in the several novel features of construction and operation hereinafter described and which are specifically set forth in the claims hereunto annexed.

30 It is constructed as follows, reference being had to the accompanying drawings, in which—

Figure 1, is a front elevation of the apparatus, the rod 11 being shown in the rear of the disks. Fig. 2, is a top plan view thereof, the standard being cut off, the rod 11 being shown in front of the disks. Fig. 3, is a side elevation of one of the flash cups, its mounting and friction mechanism. Fig. 4, is
40 a vertical section of same. Fig. 5, is a top plan thereof. Fig. 6, is a top plan showing the primer holder open. Fig. 7 is an enlarged front elevation of the standard, the crank thereon, the connection to the friction bars, and the rod for operating said crank. Fig. 8 is a side elevation of said primer holder detached. Fig. 9 is a front elevation of the spring upon the crank-rod, part of said rod and of the standard. Fig. 10, is a front elevation, showing the cups mounted in a different manner, and a frictional ignition mechanism actuated in a somewhat different man-
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ner. Fig. 11, is a vertical transverse section of one of the flash cups, shown in Fig. 10, and its mounting upon the reciprocating friction rod. Fig. 12, is a like view of the same, longitudinal to said rod. Fig. 13, is an elevation of the cup, detached. Fig. 14, is a side elevation and a top plan of the cap into which the cup is screwed. 60

Upon the standard —A— the arms —2— are adjustably mounted by means of set screws —3— and —4—4— are the flash-cups mounted upon said arms, and vertically slotted to receive the reciprocating friction rod 65 —5— which is provided with teeth —6— or otherwise roughened. These rods are connected by the pitmen —7— to the crank-disk —8— pivoted upon said standard so that the partial rotation thereof will reciprocate said 70 rods. Under each cup a spring primer-holder —9— is pivoted, provided with a receiver —10— which extends up through said arm —2— to or into the base of the cup, so as to bring the primer into contact with the teeth 75 of said friction rod. A crank-rod —11— is connected to each crank-disk either on its front or rear side as shown in Figs. 1 and 2, and provided with a spring —12— so that when it is pressed down, said spring is set, 80 so that when the trigger which holds said rod down is released, said spring will throw it up, rotating said disk and actuating said rods to scratch or abrade and ignite said primer and thus simultaneously flash all of said cups. 85 Any ordinary mechanism, such as the air-bulb 13 and hose —14— can be used to operate said trigger catch to release said crank rod. It will be seen that by disconnecting said crank-rod from the cranks, all of the 90 flash-cup carriers can be dropped down together to make the apparatus portable.

In Fig. 10, the main frame comprises a base —a—, uprights —b— and transverse bars —c— screwed together so as to be readily 95 taken apart for packing into small compass for a portable machine, an auxiliary frame, comprising the sides —d— and rods —e— connecting them, all screwed together and readily detachable for packing; said sides fitting loosely upon two or more of the bars 100 —c— and adapted to be reciprocated thereon to reciprocate the friction rods —e—. Springs —h— connect the auxiliary frame to the up-

rights. A piston rod —*k*— is connected to this latter frame, and is provided with an ordinary head within the cylinder —*m*— to which the hose —*m'*— is connected leading to the bulb —*n*— or other source of power, by which said piston is actuated to siide said auxiliary frame to the left, against the springs and compress them, so that when the pressure is removed from said piston, they will force said frame back to its normal position. A similar cylinder and piston mechanism can be used to operate the trigger or catch in the construction shown in Fig. 1.

The flash-cups —*x*— are suspended from or secured to the bars —*c*— and are provided with a threaded base, onto which the screw cap —*r*— is screwed to hold the nipple —*r'*— by the engagement of their flanges, as shown, or in any other suitable manner. Said nipple is transversely slotted at —*s*— to receive a fulminate or paper primer, and is also perforated transversely to said slot at —*s'*—, said slot and perforation intersecting each other, and the rods —*e*— pass through said perforations, being provided with teeth, or otherwise roughened, as at —*t*— which will scratch and ignite each and all of the primers simultaneously and ignite the contents of all the

cups (as gunpowder) and flash all of them simultaneously, whenever the auxiliary frame is actuated as aforesaid.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A suitable support, supporting arms, flash cups mounted on the arms, and provided with slots through their bases, and friction rods having serrated surfaces and adapted to move endwise, combined with the spring primer holders which engage with the serrated surfaces on the friction rods, substantially as shown.

2. In a flash light apparatus, the standard, supporting arms connected thereto, flash cups mounted on the arms, friction rods provided with serrated surfaces, and passing through the cups, and the spring primer holders, combined with a crank or disk, and connecting rods between the disk and friction rods, substantially as described.

In witness whereof I have hereunto set my hand this 12th day of March, 1894.

EVAN D. EVANS.

In presence of—

C. W. SMITH,
HOWARD P. DENISON.